Department of Transportation

The Department of Transportation (WSDOT) has the largest GHG emissions among Washington State agencies and accounts for 21 percent of the emissions produced by all state agencies in 2009.

Table 4: WSDOT Emission by Source, 2009

EMISSION SOURCE	USAGE	EMISSIONS ($MTCO_2E$) CREATED FROM USAGE
Purchased electricity and steam	112,564,464 (KWh)	46,465
Natural gas and other fuels used in buildings and fixed equipment (stationary sources)	697,650 (Therms)	4,471
Fleet: Ferries	16,935,633 (gallons)	172,879
Fleet: On-road light duty	756,831 (gallons)	6,650
Fleet: On-road heavy duty	2,692,460 (gallons)	25,404
Fleet: Off-road	290,659 (gallons)	2,957
Number of employees	8,052	NA
Occupied space square feet	3,493,837	NA

Table 5: WSDOT Emissions Reductions Needed to Meet 2020 Target

	2005	2008	2009
Total emissions ($MTCO_2e$)	261,122	262,350	258,826
2020 emissions target (15% below 2005)			221,954
Emissions reductions from 2009 needed to meet 2020 target ($MTCO_2e$)			**36,872**

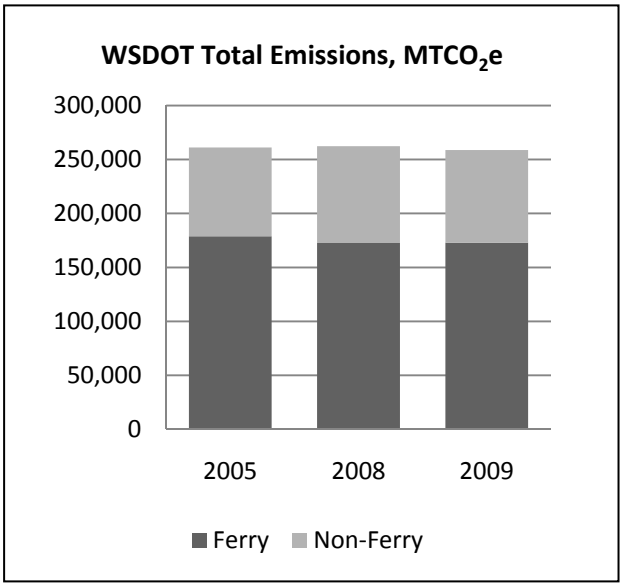

Figure 6: WSDOT Total Emissions

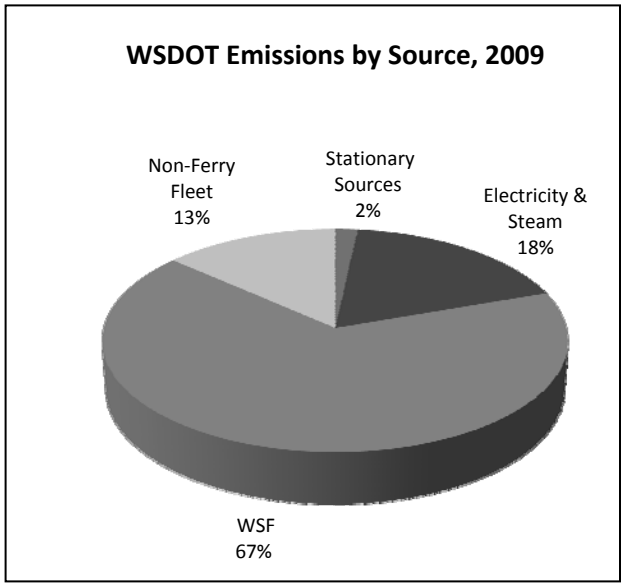

Figure 7: WSDOT Emissions by Source, 2009

The agency's emissions have decreased by almost 1percent since 2005 levels, largely due to reductions in fleet emissions.

Washington State Ferry System

Washington State Ferry (WSF) produced about 67 percent of WSDOT 2009 total emissions and 14 percent of total state emissions. Emissions levels from the ferries have dropped by 3 percent since 2005.

Vehicle fleet

The nature of WSDOT's work requires a large number of heavy-duty vehicles and equipment. The fuel (mostly diesel) consumed from vehicles and equipment is dependent on the work required to construct and maintain the state's highway system. Emissions from the fleet and equipment vary annually based on the:

- Severity of weather conditions.
- Magnitude of roadway maintenance required.
- Number of construction projects.

Photo 8: WSDOT staff prepares to plow snow on the Snoqualmie pass, keeping traffic moving during a winter storm.

Facilities energy use

At 18 percent, purchased electricity and steam used in WSDOT facilities are the next largest source of GHG emissions. WSDOT is responsible for powering their own facilities but also for traffic signals, highway lights, rest areas and other roadside energy use.

Photo 9: Variable message sign on I-5 provides driver information such as travel times and warnings of incidents ahead.

Actions taken

WSDOT has taken actions to reduce the emissions from its ferries. They are in the process of phasing in high fuel efficiency ferries. One new ferry is operating and WSDOT has plans for two more fuel efficient ferries in 2011. WSDOT also reduced ferry service by two runs and ran some vessels on two engines instead of four engines saving 45,000 gallons of fuel a month. About 20 years ago, WSDOT installed shore power infrastructure to plug in ferries during lay-ups. They have also used biofuels in ferries since 2005.

WSDOT has a Fuel Conservation Committee for the state ferry system that looks at a variety of fuel reduction options, such as:

- Buying new vessels
- Changing fuel type
- Reducing service
- Slowing ferries and using fewer engines

Realistically unless WSDOT buys new vessels and changes the type of fuel used, the quickest way to reduce GHG emissions is to reduce service levels, i.e. number of runs. However, WSDOT is required by law to provide a specific level of service.

WSDOT has taken several actions since 2005 to cut costs, reduce fuel use and lower GHG emissions from its on-road fleet. For example, WSDOT:

- Installed shift lights in heavy trucks, alerting the driver of the optimum time to shift gears; increased their use of biodiesel; and replaced incandescent warning lights with LED lights to reduce idling, and limited idling for on-road vehicles.
- Purchased about 390 low emission and high mileage vehicles including 74 hybrids; discouraged purchase of SUVs.
- Adjusted its preventative maintenance schedule, starting July 1, 2009. WSDOT estimates a reduction of more than 14,500 gallons of petroleum products (engine oil) consumed per year.
- Considers alternative engine configurations regarding fuel economy and job specifications when making vehicle-purchasing decisions.
- Implemented a fuel conservation policy directing employees to conserve fuel and seek alternatives to single occupied vehicles on WSDOT business travel whenever practical and prudent.

Actions taken by WSDOT have reduced its overall fleet fuel use by 10 percent since 2008.

Steps taken to reduce electricity use include:

- Installing occupancy detectors.
- Retrofitting traffic signals to use high efficiency LEDs.
- Ensuring all new construction is built to a LEED Silver standard or better.

For more information on WSDOT's commitment to emissions reduction, see:

- WSDOT's 2003 Sustainability Plan[30]
- 2009 Sustainability Plan Progress Report[31].